

### Architect's and Engineer's Specifications

The amplifier shall be a four-channel model with a switch mode power-supply with power factor correction and bridgeable switch mode fixed frequency class D output circuit topology. The amplifier shall operate from 100 V - 240 V  $\pm$  10%, 50/60 Hz, universal AC input power with a power factor  $\cos(\phi)$  greater than 0.95 from 200W to full output power and shall draw no more than 375 VA (2.3 A @230 V; 4.7 A @115 V) when driven with pink noise signal at 1/8 of rated power into 4-ohm loads. The amplifier shall be provided with an IEC C13 16A mains detachable connector and power cord set with VDEI6A on amplifier side and an American 3 pin 15A plug for USA or Schuko plug for EU and every other nation, on the other. The amplifier shall have internal heat sinks cooled by a continuously variable speed fan with microprocessor temperature control. Air flow shall be from front to rear.

The amplifier shall have a synchronized off-on muting, acting for four seconds after turn-on and within 500 ms after turn-off or loss AC power. Each channel shall have DC protection in order to protect against infrasonic signals and very low frequencies at the output that could damage loudspeakers. Each channel shall have VHF protection in order to protect loudspeakers against strong, very high frequency signals. Each channel shall have circuitry to protect against short circuits or other stressful events for the output circuit. Each channel shall have an independent clip limiter in order to prevent severely clipped waveforms from reaching loudspeakers, whilst maintaining full peak power. Each channel shall have a long term limiter in order to protect loudspeakers against non musical signals such as sine waves, feedback etc.

Front panel controls shall include: switch for selecting power on and off, one removable dust cover; two gain reduction knobs, one for each channel going from  $-\infty$  to 0 ( $-\infty$ , 4, 14, 18, 20, 22, 24, 26, 28, 30, 32 dB) stepped attenuations. The front panel shall also have LED bars for each channel, with 3 green, 1 yellow, and 1 red LEDs; the 3 green LEDs will light up for an output of -9 dB, -6 dB and -3 dB respectively, the yellow LED will light up at -1 dB while the red will light when the maximum output will be reached; a green LED for each channel, marked as "signal", will light up when input signal shall reach -66 dBV; a red LED for each channel, marked as "protect", shall light up to indicate any of the following 3 conditions: 1) if the amplifier wires develop a short circuit 2) if the thermal protection circuit is activated and 3) if output tension reduction has been activated due to steady long term RMS signals (not musical signals but sine waves, feedback, etc.) The front panel shall also include a green LED, marked as "ready", to indicate that the amplifier is turned on, and a yellow LED, marked as "temp", to indicate when temperature shall reach 70° C (158° F), before the protection circuit will mute outputs.

The rear panel shall contain these features: one RJ45 connector for RS485 network capabilities and dual recessed encoders for amplifier ID selection, providing full monitoring and control via proprietary software running on an external PC(Q4002R model only).

The output connectors for each channel shall be 2 Neutrik® Speakon® NL4MD (mates with NL4FC or NL4) (positive on 1+ negative on 1- for stereo configuration; positive on 2+ negative on 2- for bridge configuration); Analog input connectors for each channel shall be Neutrik® XLR/Jack combo connectors with pin 2 positive (hot) on XLR, tip positive (hot) on jack, pin 3 negative (cold) on XLR, ring negative (cold) on jack, pin 1 ground on XLR, sleeve ground on jack.

The amplifier shall have a link switch to connect input channel 1 to input channel 2 and input channel 3 to input channel 4. The power connector shall be an IEC 16A with cable retention system.

Each channel shall be capable of meeting the following performance criteria: EIAJ (1 kHz @ 1% THD) in stereo mode: 2x350 W @8 Ohm, 2x600 W @4 Ohm, 2x1000 W @2 Ohm; EIAJ (1 kHz @ 1% THD) in bridge mode: 1x1200 W @8 Ohm, 1x2000 W @4 Ohm; maximum output voltage per channel shall be 74 V peak. Input impedance: 10 kOhm, balanced; input sensitivity @8 Ohm: 1.32 Vrms/4.63 dBu; gain: 32dB; frequency response (1 W @8 Ohm): 5 Hz - 30 kHz ( $\pm$  3 dB); damping factor: >600 @100 Hz; slew Rate @8 Ohm: 40 V/us (input filter bypassed); S/N Ratio (20 Hz - 20 kHz A weighted) in dB: >105 dBA; THD+N: <0.1% from 0.1 W to full power (typically <0.1%); SMPTE IMD: <0.5% from 0.1 W to full power (typically <0.1%); DIM100 IMD: <0.02% from 0.1 W to full power (typically <0.01%); crosstalk > 70 dB @1 kHz.

The dimensions of the amplifier shall allow for 19 inch (48.3 cm) EIA standard (RS-310-B) rack mounting and it shall occupy one rack space; the amplifier shall be 4.4 cm (1.75 inches) tall and 45.5 cm (17.9 inches) deep. The amplifier's weight shall not exceed 9.5 kg (20.9 lb). The amplifier shall be approved for use as specified by CE with CSA.